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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/754,365

01/08/2004

Yin S. Tang

M-15317 US

7609

7590

02/18/2005

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EXAMINER

SPECTOR, DAVID N

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/754,365

Applicant(s)

TANG, YIN S.

Examiner

David N. Spector

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 0104/20040108.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☒ Other: DETAILED ACTION.

**DETAILED ACTION – NONFINAL REJECTION*****Objections to the Claims***

**Claims 1, 2, 4, and 13 are objected to because of the following informalities. Appropriate corrections are required.**

In regard to Claim 1 the term “bundle” is objected to because its intended meaning is unclear as used in the second line of independent claim 1. In particular, it is not clear if the individual constituents of said bundle are bonded, or otherwise fused together; or alternatively, if said constituents are simply bound together by mechanical means provided external to said bundle.

In regard to Claim 2 the phrase “at least one end [emphasis added] of at least one sheet” is objected to because it is confusing as used in the second line of claim 2. In particular, the aforesaid “end” appears to refer to the surface(s) of the aforesaid “at least one sheet” (e.g. which are perpendicular to the optical axes of the “transparent member segments” included in said sheet). Conventionally, however, the two opposite/parallel surfaces of a sheet are referred to as the ‘faces’, or more simply, the ‘surfaces’ of a sheet. The surface(s) forming the peripheral boundaries sheet are conventionally known as the ‘ends’ of the sheet; or alternatively, as the “edges” thereof. Correction is required.

In regard to Claim 4 the term “honeycomb-like structure” is objected to because its intended meaning is unclear as used in the third line of claim 4. In particular, it is not clear if said “honeycomb-like structure” is limited to a close-packed hexagonal structure (e.g. like a honeycomb). Correction is required.

In regard to Claim 13 the term “resembles a honeycomb-like structure” is objected to because its intended meaning is unclear as used in the third line of independent claim 13. In particular, it is not clear if said “honeycomb-like structure” is limited to a close-packed hexagonal structure (e.g. like a honeycomb). Correction is required.

Since the examiner understands the general intent of the claims, the aforesaid informalities are treated herein through objections to the claims, rather than by rejections thereto under 35 U.S.C. 112, second paragraph.

### ***Objections to the Specification***

**The instant specification is objected to because it is replete with terms and passages which are not clear, concise and/or exact.** According to 35 U.S.C. 112, first paragraph, the specification to be written in "full, clear, concise, and exact terms." The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Applicant should be careful not to introduce any new matter into the disclosure in the course of these revisions. Some examples of these unclear terms/passages follow, below.

In particular, it is unclear if said "honeycomb-like structure" is limited to a close-packed hexagonal structure (*e.g. like a honeycomb*) or to other particular packing patterns ([0011]; [0030]). Similarly, it is unclear what the phrase "light interpreter" refers to in the description of **FIG. 5** presented therein ([0020]).

Furthermore, it is unclear if the processes described therein, whereby "the individual ends **304** and **306** of each optically transparent member segment **302** can be adjusted or modified to create the curvature, size, and parameters of each optically transparent member segment **302** (**s107**)", are applied to the optically transparent member segment before or after they are incorporated into a "bundle". None of the figures in the instant application illustrates the aforementioned processes being applied to a "bundle" of said optically transparent member segments (*e.g. FIG. 4A illustrates what appears to be a single layer of discrete evenly-spaced members 302; while FIGs. 8A, 8B, and 9 illustrate the aforementioned processes being applied to a single isolated optically transparent member*). Finally, there is no discussion/illustration therein of how one would expose/isolate the individual members to be adjusted or modified from within a contiguous bundle comprising a plurality of members.

### ***Objections to the Drawings***

**The drawings are objected to. The present drawings appear to be informal. They contain numerous defects in their use of shading, and in the quality of the line art and lettering included therein.** Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropri-

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ate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-8, 11-13, 15-17, and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Woodcock (U.S. Patent No. 3,216,807 A).**

In regard to Claim 1 Woodcock discloses a method for manufacturing a microlens array (*e.g. a fiber optic faceplate*) comprising: providing a bundle 32 of optically transparent members 20 (col. 3, ln. 32-41; col. 4, ln. 37-42, 53-56; FIG. 1-5); cutting the bundle 32 of optically transparent members 20 to form at least one sheet of optically transparent member segments 26 (col. 5, ln. 72-col. 6, ln. 2; col. 6, ln. 35-63; FIG. 6-10); and heating the at least one sheet of optically transparent member segments 26 (col. 7, ln. 8-12, 56-60; FIG. 11) to form lens segments F. Claim 1 is therefore anticipated by Woodcock.

In regard to Claim 2 Woodcock discloses a method for manufacturing a microlens array commensurate with independent claim 1 from which claim 2 depends, further comprising modifying at least one 'end' [*sic. face*] of the at least one sheet of optically transparent member segments 26 (*e.g. both faces of said at least one sheet of optically transparent member segments 26 are modified by heating said sheet in a furnace to produce a sealed fused joinder between each and every optically transparent member segments 26 throughout, and on both faces of, the lens array F*) (col. 8, ln. 10-15; FIG. 11). Claim 2 is therefore anticipated by Woodcock.

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In regard to Claim 3 Woodcock discloses a method for manufacturing a microlens array comensurate with claim 2 from which claim 3 depends, wherein said modifying comprises modifying both 'ends' [sic. *faces*] of said optically transparent member segments **26** (*e.g. both faces of said at least one sheet of optically transparent member segments 26 are modified by heating said sheet in a furnace to produce a sealed fused joinder between each and every optically transparent member segments 26 throughout, and on both faces of, the lens array F*) (col. 8, ln. 10-15; **FIG. 11**). Claim 3 is therefore anticipated by Woodcock.

In regard to Claim 4 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 1 from which claim 4 depends, wherein said providing comprises adhering said optically transparent members together using an adhesive **54** to form a honeycomb-like structure (*e.g. the aforesaid adhesive is used to hold the ends of said optically transparent members together during the drawing-operation which is included in the method-step of 'providing'*) (col. 5, ln. 9-16; **FIG. 5**). Claim 4 is therefore anticipated by Woodcock.

In regard to Claim 5 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 1 from which claim 5 depends, wherein said optically transparent members comprise glass (col. 6, ln. 3-9; **FIG. 1**). Claim 5 is therefore anticipated by Woodcock.

In regard to Claim 6 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 1 from which claim 6 depends, wherein said heating comprises heating an end of each optically transparent member segment to form a lens surface thereon (*e.g. both ends of each transparent member segments 26 are heated in a furnace 106 to complete the formation of lens array F*) (col. 8, ln. 10-15; **FIG. 11**). Claim 6 is therefore anticipated by Woodcock.

In regard to Claim 7 Woodcock discloses a method for manufacturing a microlens array comensurate with claim 6 from which claim 7 depends, wherein said lens surface comprises a planar lens surface (col. 8, ln. 35-37). Claim 7 is therefore anticipated by Woodcock.

In regard to Claim 8 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 1 from which claim 8 depends, wherein said heating comprises heating both ends of each optically transparent member segment to form a lens surface thereon (*e.g. both ends of each transparent member segments 26 are heated in a furnace 106 to complete the formation of lens array F*) (col. 8, ln. 10-15; **FIG. 11**). Claim 8 is therefore anticipated by Woodcock.

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In regard to Claim 11 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 1 from which claim 11 depends, wherein said heating comprises placing said at least one sheet of optically transparent member segments into a furnace **106** to expose ends of said optically transparent member segments to a heat source (col. 8, ln. 10-15; **FIG. 11**). Claim 11 is therefore anticipated by Woodcock.

In regard to Claim 12 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 1 from which claim 12 depends, wherein said heating comprises exposing said at least one sheet of optically transparent member segments to an energy source (*e.g. the energy source is a furnace 106*) (col. 8, ln. 10-15; **FIG. 11**). Claim 12 is therefore anticipated by Woodcock.

In regard to Claim 13 Woodcock discloses a method for manufacturing a microlens array (*e.g. a fiber optic faceplate*) comprising: providing optically transparent cylindrical rods **20** bundled together to form a structure **32** having a cross section that resembles a honeycomb-like structure (col. 3, ln. 32-41; col. 4, ln. 37-42, 53-56; **FIG. 1-5**); cutting the bundle **32** of optically transparent cylindrical rods **20** to form at least one sheet of optically transparent rod segments **26** (col. 5, ln. 72-col. 6, ln. 2; col. 6, ln. 35-63; **FIG. 6-10**); each optically transparent rod segment **26** having a first end and a second end ; and heating at least one of said ends to form a lens surface on said ends (*e.g. both ends of each transparent rod segment 26 are heated in a furnace 106 to complete the formation of a planar lens surface on each end*). (col. 7, ln. 8-12, 56-60; **FIG. 11**). Claim 13 is therefore anticipated by Woodcock.

In regard to Claim 15 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 13 from which claim 15 depends, wherein said optically transparent cylindrical rods **20** comprise glass. (col. 6, ln. 3-9; **FIG. 1**). Claim 15 is therefore anticipated by Woodcock.

In regard to Claim 16 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 13 from which claim 16 depends, further comprising modifying the shape of at least on end of each optically transparent rod segment **26** (*e.g. the shape/size of both ends of each optically transparent rod segment 26 are modified by heating said sheet in a furnace to produce a sealed fused joinder between each and every optically transparent member segment 26*) (col. 8, ln. 10-15; **FIG. 11**). Claim 16 is therefore anticipated by Woodcock.

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In regard to Claim 17 Woodcock discloses a method for manufacturing a microlens array comensurate with claim 13 from which claim 17 depends, wherein said lens surface comprises a planar lens surface (col. 8, ln. 35-37). Claim 7 is therefore anticipated by Woodcock.

In regard to Claim 19 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 13 from which claim 19 depends, wherein said heating comprises placing said at least one sheet of optically transparent member segments into a furnace 106 to expose ends of said optically transparent rod segments to an energy source (col. 8, ln. 10-15; FIG. 11). Claim 19 is therefore anticipated by Woodcock.

In regard to Claim 20 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 13 from which claim 20 depends, wherein said heating comprises exposing ends of said optically transparent rod segments to a light source (e.g. heating said d optically transparent rod segments in furnace 106 inherently exposes the ends thereof to an intense source of black/gray-body radiation which includes visible light (col. 8, ln. 10-15; FIG. 11). Claim 19 is therefore anticipated by Woodcock.

### ***Claim Rejections - 35 USC § 102/103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 9, 10, and 18 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Woodcock (U.S. Patent No. 3,216,807 A).**

In regard to Claim 9 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 1 from which claim 9 depends. Woodcock discloses that said at least one sheet comprises a thickness of "a fraction of an inch more or less" (col. 6, ln. 65-66). While Woodcock does not expressly disclose that said at least one sheet comprises a specific thickness of between about 100  $\mu\text{m}$  and 1 mm, it would appear that either said "fraction of an inch more or less" is inherently includes at least the upper end of the range from 100  $\mu\text{m}$  and 1 mm; or alternatively, that a optical fiber lens array having such thickness would be obvious to



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one of ordinary skill in the art at the time of the instant invention. Claim 9 is therefore anticipated/unpatentable by/over Woodcock.

In regard to Claim 10 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 1 from which claim 9 depends. Woodcock discloses that said at least one sheet comprises a thickness of "a fraction of an inch more or less" (col. 6, ln. 65-66). While Woodcock does not expressly disclose that said at least one sheet comprises a specific thickness of greater than 1 mm, it would appear that either said "fraction of an inch more or less" is inherently includes a specific thickness of greater than 1 mm; or alternatively, that a optical fiber lens array having such thickness would be obvious to one of ordinary skill in the art at the time of the instant invention. Claim 10 is therefore anticipated/unpatentable by/over Woodcock.

In regard to Claim 18 Woodcock discloses a method for manufacturing a microlens array comensurate with independent claim 13 from which claim 18 depends. Woodcock discloses that said at least one sheet comprises a thickness of "a fraction of an inch more or less" (col. 6, ln. 65-66). While Woodcock does not expressly disclose that said at least one sheet comprises a specific thickness of between about 100  $\mu\text{m}$  and 1 mm, it would appear that either said "fraction of an inch more or less" is inherently includes at least the upper end of the range from 100  $\mu\text{m}$  and 1 mm; or alternatively, that a optical fiber lens array having such thickness would be obvious to one of ordinary skill in the art at the time of the instant invention. Claim 18 is therefore anticipated/unpatentable by/over Woodcock.

#### ***Other Remarks/Information***

Claim 14 is objected to as being dependent upon a rejected (and objected-to) base claim but could be allowable if rewritten in independent form including all of the limitations of the base claim; if and only if the base claim were to be amended/revised to overcome the objections thereto, as noted above in this Office action. Additionally, the many of abovenoted claim rejections under 35 U.S.C. 102 appear to be engendered primarily by overly-broad claim constructions.

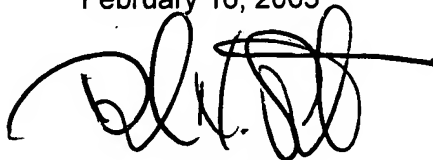
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications

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is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any other inquiry concerning this communication or earlier communications from the examiner should be directed to David N. Spector whose telephone number is (571) 272-2338. The examiner can normally be reached at this number Monday through Friday between 6:00 AM and 2:30 PM. The fax number for the organization where this application is assigned is (703) 872-9306.

February 16, 2005

A handwritten signature in black ink, appearing to read 'D. N. Spector', with a long horizontal flourish extending to the right.

DAVID N. SPECTOR  
PRIMARY EXAMINER